May 16, 1988

Docket No. 50-368

Mr. T. Gene Campbell
Vice President, Nuclear
Operations
Arkansas Power and Light Company
P. O. Box 551
Little Rock, Arkansas 72203

Dear Mr. Campbell:

SUBJECT: ISSUANCE OF AMENDMENT NO. 84 TO FACILITY OPERATING LICENSE NO. NPF-6 - ARKANSAS NUCLEAR ONE, UNIT NO. 2 (TAC NO. 68005)

The Commission has issued the enclosed Amendment No. 84 to Facility Operating License No. NPF-6 for the Arkansas Nuclear One, Unit No. 2 (ANO-2). This amendment consist of changes to the Technical Specifications (TSs) in response to your application dated May 9, 1988.

The amendment changes the Technical Specifications to increase the maximum allowed drop time for control element assemblies from 3.0 to 3.2 seconds.

A copy of our related Safety Evaluation is enclosed. Notice of Issuance will be included in the Commission's next Bi-weekly Federal Register notice.

Sincerely,

/s/

C. Craig Harbuck, Project Manager
Project Directorate - IV
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 84 to NPF-6
2. Safety Evaluation

cc w/enclosures:
See next page

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LTR NAME:_ANO2 EMERGENCY TSCR AMEND

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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2. Safety Evaluation

cc w/enclosures:
See next page

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Honorable William Abernathy
County Judge of Pope County
Pope County Courthouse
Russellville, Arkansas 72801

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

ARKANSAS POWER AND LIGHT COMPANY

DOCKET NO. 50-368

ARKANSAS NUCLEAR ONE, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 84
License No. NPF-6

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Arkansas Power and Light Company (the licensee) dated May 9, 1988, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.(2) of Facility Operating License No. NPF-6 is hereby amended to read as follows:

   2. Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 84 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. The license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Lester S. Rubenstein, Assistant Director
for Region IV and Special Projects
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: May 16, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 84

FACILITY OPERATING LICENSE NO. NPF-6

DOCKET NO. 50-368

Revise the following page of the Appendix "A" Technical Specifications with the attached page. The revised page is identified by Amendment number and contains a vertical line indicating the area of change. The overleaf page is provided to maintain document completeness.

REMOVE PAGE	INSERT PAGE
3/4 1-23	3/4 1-23

CEA DROP TIME

LIMITING CONDITION FOR OPERATION

3.1.3.4 The individual full length (shutdown and control) CEA drop time, from a fully withdrawn position, shall be ≤ 3.2 seconds from when the electrical power is interrupted to the CEA drive mechanism until the CEA reaches its 90 percent insertion position with:

a. $T_{avg} \geq 525°F$, and

b. All reactor coolant pumps operating.

APPLICABILITY: MODES 1 and 2.

ACTION:

a. With the drop time of any full length CEA determined to exceed the above limit, restore the CEA drop time to within the above limit prior to proceeding to MODE 1 or 2.

b. With the CEA drop times within limits but determined at less than full reactor coolant flow, operation may proceed provided THERMAL POWER is restricted to less than or equal to the maximum THERMAL POWER level allowable for the reactor coolant pump combination operating at the time of CEA drop time determination.

SURVEILLANCE REQUIREMENTS

4.1.3.4 The CEA drop time of full length CEAs shall be demonstrated through measurement prior to reactor criticality:

a. For all CEAs following each removal of the reactor vessel head,

b. For specifically affected individuals CEAs following any maintenance on or modification to the CEA drive system which could affect the drop time of those specific CEAs, and

c. At least once per 18 months.

SHUTDOWN CEA INSERTION LIMIT

LIMITING CONDITION FOR OPERATION

3.1.3.5 All shutdown CEAs shall be withdrawn to the Full Out position.

APPLICABILITY: MODES 1 and 2*#.

ACTION:

With a maximum of one shutdown CEA withdrawn to less than the Full Out position, except for surveillance testing pursuant to Specification 4.1.3.1.2, within one hour either:

a. Withdraw the CEA to the Full Out position, or

b. Declare the CEA inoperable and apply Specification 3.1.3.1.

SURVEILLANCE REQUIREMENTS

4.1.3.5 Each shutdown CEA shall be determined to be withdrawn to the Full Out position:

a. Within 15 minutes prior to withdrawal of any CEAs in regulating groups during an approach to reactor criticality, and

b. At least once per 12 hours thereafter.

*See Special Test Exception 3.10.2.

#With $K_{eff} \geq 1.0$.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 84 TO

FACILITY OPERATING LICENSE NO. NPF-6

ARKANSAS POWER AND LIGHT COMPANY

ARKANSAS NUCLEAR ONE, UNIT NO. 2

DOCKET NO. 50-368

1.0 INTRODUCTION

By letter dated May 9, 1988, Arkansas Power and Light Company (AP&L or the licensee) requested amendments to the Technical Specifications (TSs) appended to Facility Operating License No. NPF-6 for Arkansas Nuclear One, Unit 2 (ANO-2). The proposed amendment would change the control element assembly maximum drop time operability limit.

2.0 DISCUSSION

At the conclusion of refueling outage 2R6, Arkansas Power & Light (AP&L) recently performed control element assembly (CEA) drop time testing as required by Technical Specifications (TS). Utilizing a new method which involved dropping all 81 control rods simultaneously rather than one at a time, AP&L noted a fairly uniform delay in the unlatching of the CEAs which caused an increase in CEA drop times of approximately 0.25 seconds. This resulted in a number of CEAs exceeding the TS limit of 3.0 seconds, with the largest drop time being 3.18 seconds. In a letter dated May 5, 1988, AP&L requested a temporary waiver of compliance from TS 3.1.3.4 and provided a supporting safety evaluation valid to 30 percent full power, to allow startup low power physics testing to proceed concurrently with the preparation and submittal of a technical specification change request to revise the requirement for CEA drop time. The temporary waiver of compliance was granted on May 5 until May 12, 1988 contingent upon reactor power being limited to no higher than 30 percent rated power, and an emergency technical specification change request being submitted by 5:00 p.m. (EST) on May 9. The emergency technical specification change request was submitted on May 9, 1988 and provided the results of evaluations performed to support an increased CEA drop time Technical Specification limit of 3.2 seconds for full power operation.

3.0 EVALUATION

The staff has reviewed AP&L's reevaluation of those Chapter 15 Design Basis Accidents which could be adversely impacted by the increased CEA scram time. The reevaluation of these events, which incorporated the increased measured CEA drop times in a conservative manner, also incorporated

a revised CEA reactivity versus position curve based on space-time neutron kinetics calculations rather than the previously used static calculations. The staff has previously approved this methodology to determine CEA scram characteristics for other Combustion Engineering plants. The reevaluation has shown that for most events, this revised scram reactivity prediction is conservative relative to the reference analysis scram reactivity data at the crucial time in the transient during the closest approach to a safety limit.

Two events, the uncontrolled CEA withdrawal event from 100% power conditions and the increased main feedwater event, were found to involve a rapid approach to minimum departure from nucleate boiling ratio (DNBR) during the first part of the scram insertion. For these events, there was insufficient CEA insertion for space-time neutronic adjustments to totally offset the increased trip delay time.

To account for this, AP&L has proposed to increase the core protection calculator (CPC) DNBR power uncertainty penalty addressable constant labeled BERR1 in the CPC algorithms by a factor of 1.005. Adjustments to the value of addressable constants by AP&L, without prior NRC approval, is permitted by Technical Specification 6.8.1.g, provided the new value is within the software limit values. This is the case with this adjustment. Although the BERR1 addressable constant may require change from cycle to cycle, the 1.005 correction factor will be permanently included in the determination of those changes, to account for the delay in CEA insertion on a reactor trip for the two events noted above. This correction factor effectively provides a reactor trip at least 0.3 seconds sooner than that assumed in the reference analysis. The staff concludes that this earlier trip is more than sufficient to offset the effect of the measured increased trip delay time.

The staff finds the proposed increase in CEA drop time acceptable based on the above evaluation which concluded that the reference safety analyses remain bounding provided the adjustment to the BERR1 addressable constant discussed above is made to account for the cases of the uncontrolled CEA withdrawal event from 100% power and the increased main feedwater event.

4.0 EMERGENCY CIRCUMSTANCES

CEA drop testing as a matter of course occurs just prior to reactor startup. Utilizing a more realistic, and thus safety enhancing testing method, AP&L discovered a previously unidentified delay in rod drop times. In response to this finding they have taken conservative action by proposing an adequately justified increase in the CEA drop time requirement. Approval of the requested Technical Specification change is needed to avoid a delay in plant startup. AP&L could not have reasonably anticipated the need for this change.

5.0 NO SIGNIFICANT HAZARDS CONSIDERATION

The Commission's regulations in 10 CFR 50.92 state that the Commission may make a final determination that a license amendment involves no significant hazards consideration if the operation of the facility in accordance with the amendment would not:

(1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or
(2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or
(3) Involve a significant reduction in a margin of safety.

The evaluation in Section 2.0 shows that the revised upper limit on CEA drop time would have no effect on the probability and no significant effect on the consequences of any of the accidents previously evaluated. The proposed change does not create a possibility of a new or different accident, and does not affect any margins of safety.

Based on the above evaluation, the staff concludes that operation of the facility in the proposed manner would not involve a significant increase in the probability or consequences of an accident previously evaluated, would not create the possibility of a new or different kind of accident from any accident previously evaluated, and would not involve a significant reduction in a margin of safety.

Accordingly, we conclude the amendment involves no significant hazards consideration.

6.0 STATE CONSULTATION

In accordance with the Commission's regulations, consultation was held with the State of Arkansas by telephone. The State expressed no concern from both the standpoint of safety and the standpoint of the no significant hazards consideration determination.

7.0 ENVIRONMENTAL CONSIDERATION

The amendment involves a change in the operability acceptance criteria of a surveillance requirement for control element assemblies. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposures. The Commission has made a final no significant hazards consideration finding with respect to this amendment. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR Section 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

8.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: May 16, 1988

Principal Contributors: C. Harbuck, L. Kopp